STEVEN L. BESHEAR
GOVERNOR

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

LEONARD K. PETERS
SECRETARY

FACT SHEET

KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM
PERMIT TO DISCHARGE TREATED WASTEWATER
INTO WATERS OF THE COMMONWEALTH

KPDES No.: KY0082864 **Permit Writer:** Jonathan Reynolds **Date:** March 7, 2010
AI No.: 197

1. **SYNOPSIS OF APPLICATION**

a. Name and Address of Applicant

Kenton County Airport Board
P.O. Box 752000
Cincinnati, OH 45275-2000

b. Facility Location

Cincinnati/Northern Kentucky International Airport
2939 Terminal Drive
Hebron, Boone County, Kentucky

c. Description of Applicant's Operation

The Cincinnati/Northern Kentucky International Airport is a commercial air terminal for both passenger and freight shipping aircraft (SIC Code 4581).

d. Design Capacity

3.0 MGD

e. Description of Existing Pollution Abatement Facilities

Extended Aeration Activated Sludge (EAAS) Treatment System for storm water runoff

f. Permitting Action

This is a reissuance of a minor KPDES permit for a wastewater treatment plant serving an existing source airport.

2. **RECEIVING WATER**

a. Name/Latitude & Longitude

Facility discharges to Elijah Creek at latitude 39°4′30″ and longitude 84°39′15″. Facility discharges to Gunpowder Creek at latitude 39°2′00″ and longitude 84°40′30″.

b. Stream Segment Use Classification

Pursuant to 401 KAR 10:026, Section 5, Elijah's and Gunpowder Creeks carries the following classifications: Warmwater Aquatic Habitat, Primary/Secondary Contact Recreation, and Domestic Water Supply.

c. Stream Segment Categorization

Pursuant to 401 KAR 10:030, Section 1 Elijah's and Gunpowder Creeks are categorized as a high priority on Kentucky's 303(d)list of impaired waters. The airport's deicing fluids were identified as the source. The high priority listing required the development of a Total Maximum Daily Load (TMDL) for the deicing fluids. Ethylene glycol and propylene glycol are main components of deicing fluids. They create a high biochemical oxygen demand (BOD) and a high carbon source of food resulting in the growth of *Sphaerotilus* bacteria. *Sphaerotilus* grows rapidly in water high in carbon content and low in dissolved oxygen. It grows in long streamers covering the sides and bottom of a stream.

The Kentucky Division of Water issued the Total Maximum Daily Load (TMDL) – Impacts of Deicing Fluids on Elijah's and Gunpowder Creeks on February 5, 1998. The TMDL was approved by EPA Region IV. The TMDLs set the total maximum daily loads for deicing fluids by establishing limits for BOD_5 on each stream. As a part of this permit action, the permittee is required to develop and implement a Biological Assessment Sampling Plan for Elijah's and Gunpowder Creeks. This biological monitoring will be used to help determine the adequacy of the approved TMDL. The agency may re-evaluate and adjust the permit requirements if necessary to ensure the protection of water quality within Elijah's and Gunpowder Creeks. As noted in the summary of the TMDL, "water quality is expected to improve significantly from these actions, monitoring will continue to ensure this occurs, and additional measures will be taken if necessary to restore Elijah's and Gunpowder Creek." In addition, ethylene glycol, propylene glycol, and total organic carbon will be monitored in this permit. The Division of Water will evaluate the correlation of the presence of each in conjunction with the BOD_5 limits established by the TMDL.

d. Stream Low Flow Condition

The 7-day, 10-year low flow and harmonic mean conditions of Elijah's Creek are 0 and 0 cfs, respectively.

The 7-day, 10-year low flow and harmonic mean conditions of Gunpowder Creek are 0 and 0 cfs, respectively.

3A. REPORTED DISCHARGE AND PROPOSED LIMITS

Serial Number – Outfall 002 – Outfall from the storm water treatment system, Extended Aeration Activated Sludge (EAAS) Treatment System, which treats contaminated storm water runoff and discharges to Gunpowder Creek

Effluent Characteristics	**Reported Discharge**		**Proposed Limits**		**Applicable Water Quality Criteria and/or Effluent Guidelines**
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	
Flow (MGD)	1.34	6.5	Report	Report	401 KAR 5:065, Section 2(8)
BOD_5 (mg/l)	5.96	170	Report	Report	401 KAR 5:065, Section 2(8)
TSS (mg/l)	35.14	540	Report	Report	401 KAR 5:065, Section 2(8)
Ammonia Nitrogen (as mg/l N)					401 KAR 5:065, Section 2(8)
May 1 - October 31	.78	14	Report	Report	401 KAR 5:065, Section 2(8)
November 1 - April 30	1.24	12	Report	Report	401 KAR 5:065, Section 2(8)
Dissolved Oxygen (mg/l) (minimum)	9.3	12.4	Not less than 5.0		401 KAR 10:031, Section 4 401 KAR 5:045, Sections 3 and 5
pH (standard units)	6.97	8.41	6.0 (min)	9.0 (max)	401 KAR 10:031, Section 4 401 KAR 5:045, Section 4
Carbon, Total Organic (mg/l)	13.8	190	Report	Report	401 KAR 5:065, Section 2(8)
Oil & Grease (lbs/day)	5.4	32.4	Report	Report	401 KAR 5:065, Section 2(8)
Potassium, Total (as mg/l K)	73.03	494	Report	Report	401 KAR 5:065, Section 2(8)
Propylene Glycol (mg/l)	2.62	101.2	Report	Report	401 KAR 5:065, Section 2(8)
Ethylene Glycol (mg/l)	6.73	302	Report	Report	401 KAR 5:065, Section 2(8)

The data contained under the reported discharge columns is not from the renewal application, but rather from the analysis of the DMR data that has been reported during the term of the previous permit.

The abbreviation BOD_5 means Biochemical Oxygen Demand (5-day).
The abbreviation TSS means Total Suspended Solids.
The abbreviation NR means not reported on the Discharge Monitoring Report (DMR).
The effluent limitations for BOD_5 and TSS are Monthly (30 day) and Weekly (7 day) Averages.

4A. METHODOLOGY USED IN DETERMINING LIMITATIONS

a. Serial Number

Outfall 002 – Outfall from the storm water treatment system, Extended Aeration Activation Sludge (EAAS) Treatment System, which treats contaminated storm water runoff and discharges to Gunpowder Creek.

b. Effluent Characteristics

Flow, BOD_5, TSS, pH, Ammonia Nitrogen, Dissolved Oxygen, Oil & Grease, Total Organic Carbon, Total Potassium, Propylene Glycol, and Ethylene Glycol.

c. Pertinent Factors

This treated storm water commingles with wastewaters in a common discharge pipe to Gunpowder Creek.

Based on Kentucky's 1996 303(d) list of impaired water, Gunpowder Creek was listed as a high priority. The high priority listing required the development of a Total Maximum Daily Load (TMDL) for deicing fluids. Ethylene glycol and propylene glycol are main components of deicing fluids. They create a high biochemical oxygen demand, (BOD_5) and a high carbon source of food resulting in the growth of Sphaerotilus bacteria. Sphaerotilus grows rapidly in water high in carbon content and low in dissolved oxygen. It grows in long streamers covering the sides and bottom of a stream.

The Kentucky Division of Water issued the Total Maximum Daily Load (TMDL) – Impacts of Deicing Fluids on Elijah's and Gunpowder Creeks on February 5, 1998. The TMDL was approved by EPA Region IV. The TMDLs set the total maximum daily loads for deicing fluids by establishing limits for BOD_5 on each stream. As a part of this permit action, the permittee is required to develop and implement a Biological Assessment Sampling Plan for Elijah's and Gunpowder Creeks. This biological monitoring will be used to help determine the adequacy of the approved TMDL. The agency may re-evaluate and adjust the permit requirements if necessary to ensure the protection of water quality within Elijah's and Gunpowder Creeks. As noted in the summary of the TMDL, "water quality is expected to improve significantly from these actions, monitoring will continue to ensure this occurs, and additional measures will be taken if necessary to restore Elijah's and Gunpowder Creek." In addition, ethylene glycol, propylene glycol, and total organic carbon will be monitored in this permit. The Division of Water will evaluate the correlation of the presence of each in conjunction with the BOD_5 limits established by the TMDL.

A summarization of the water quality standards, TMDL Development, assumptions, and calculations can be found in Attachment A – Fact Sheet Addendum for Cincinnati/Northern Kentucky International Airport, Attachment B – SSTWAM95 for Cincinnati/Northern Kentucky International Airport and Attachment C – Reasonable Potential Analysis for Cincinnati/Northern Kentucky International Airport.

d. Monitoring Requirements

Instantaneous flow measurements shall be continuously recorded during the period the treatment plant is operated.

Dissolved Oxygen and pH shall be continuously recorded by grab sample during the period the treatment plant is operated.

BOD_5, TSS, Oil & Grease, Ammonia Nitrogen, Total Potassium, Ethylene Glycol, Propylene Glycol, and Total Organic Carbon shall be monitored once per week by grab sample during the period the treatment plant is operated. During periods where the treatment plant is not operated, the "No Discharge" box shall be checked on the Discharge Monitoring Report (DMR).

e. Justification of Conditions

The Kentucky regulations cited below have been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes.

Flow, BOD_5, TSS, Ammonia Nitrogen, Oxygen, Oil & Grease, Total Organic Carbon, Total Potassium, Propylene Glycol, and Ethylene Glycol
The monitoring requirements for this parameter are consistent with the requirements of 401 KAR 5:065, Section 2(8).

Dissolved Oxygen
The limits for these parameters are consistent with the requirements of 401 KAR 10:031, Section 4, and 401 KAR 5:045, Sections 3 and 5. Section 4 of 5:031 establish water quality criteria for the protection of Kentucky's waters. Section 5 of 5:045 requires biochemically degradable wastewaters to receive treatment in excess of secondary treatment if the Cabinet determines that the receiving water would not satisfy applicable water quality standards as a result of a facility discharge or discharges from multiple facilities

pH
The limits for these parameters are consistent with the requirements of 401 KAR 10:031, Section 4 and 5:045, Section 4. Section 4 of 10:031 establish water quality criteria for the protection of Kentucky's waters. Section 4 of 5:045 establish the acceptable levels of these parameters for biochemically degradable wastewaters.

3B. REPORTED DISCHARGE AND PROPOSED LIMITS

Serial Number – Outfall 003 – Storm water run off from the northern portion of the facility, aircraft deicing fluids, runway deicing fluids, and fuel residuals.

Effluent Characteristics	Reported Discharge		Proposed Limits		Applicable Water Quality Criteria and/or Effluent Guidelines
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	
Flow (MGD)	.54	7.9	Report	Report	401 KAR 5:065, Section 2(8)
BOD_5 (mg/l)					401 KAR 10:031, Section 4
May 1 – October 31	6.79	66	70	70	401 KAR 5:045, Sections 3 and 5
November 1 – April 30	8.62	170	150	150	
TSS (mg/l)	19.45	530	30	60	401 KAR 10:031, Section 4 401 KAR 5:045, Sections 2 and 3
Ammonia Nitrogen (as mg/l N)					
May 1 - October 31	.06	.43	4.0	4.0	401 KAR 10:031, Section 4
November 1 - April 30	.06	.15	10	10	401 KAR 5:045, Sections 3 and 5
Dissolved Oxygen (mg/l) (minimum)	8.79	13.62	Not less than 5.0		401 KAR 10:031, Section 4 401 KAR 5:045, Sections 3 and 5
pH (standard units)	4.72	8.97	6.0 (min)	9.0 (max)	401 KAR 10:031, Section 4 401 KAR 5:045, Section 4
Oil & Grease (lbs/day)	5.8	67.2	10	15	401 KAR 10:031, Section 4 401 KAR 5:045, Sections 2 and 3
Potassium, Total (as mg/l K)	16.5	80.2	Report	Report	401 KAR 5:065, Section 2(8)
Carbon, Total Organic (mg/l)	7.86	48	Report	Report	401 KAR 5:065, Section 2(8)
Propylene Glycol (mg/l)	1.4	12.2	Report	Report	401 KAR 5:065, Section 2(8)
Ethylene Glycol (mg/l)	3.6	47	Report	Report	401 KAR 5:065, Section 2(8)

The data contained under the reported discharge columns is not from the renewal application, but rather from the analysis of the DMR data that has been reported during the term of the previous permit.

The abbreviation BOD_5 means Biochemical Oxygen Demand (5-day).
The abbreviation TSS means Total Suspended Solids.
The abbreviation NR means not reported on the Discharge Monitoring Report (DMR).
The effluent limitations for BOD_5 and TSS are Monthly (30 day) and Weekly (7 day) Averages.

4B. METHODOLOGY USED IN DETERMINING LIMITATIONS

a. Serial Number

Outfall 003 – Storm water run off from the northern portion of the facility, aircraft deicing fluids, runway deicing fluids, and fuel residuals.

b. Effluent Characteristics

Flow, BOD_5, TSS, Fecal Coliform Bacteria, *Escherichia Coli*, pH, Ammonia Nitrogen, Dissolved Oxygen, Total Residual Chlorine (TRC), Total Phosphorus, and Total Nitrogen.

c. Pertinent Factors

Based on Kentucky's 1996 303(d) list of impaired water, Elijah's Creek was listed as a high priority. The high priority listing required the development of a Total Maximum Daily Load (TMDL) for deicing fluids. Ethylene glycol and propylene glycol are main components of deicing fluids. They create a high biochemical oxygen demand, (BOD_5) and a high carbon source of food resulting in the growth of Sphaerotilus bacteria. Sphaerotilus grows rapidly in water high in carbon content and low in dissolved oxygen. It grows in long streamers covering the sides and bottom of a stream.

The Kentucky Division of Water issued the Total Maximum Daily Load (TMDL) – Impacts of Deicing Fluids on Elijah's and Gunpowder Creeks on February 5, 1998. The TMDL was approved by EPA Region IV. The TMDLs set the total maximum daily loads for deicing fluids by establishing limits for BOD_5 on each stream. As a part of this permit action, the permittee is required to develop and implement a Biological Assessment Sampling Plan for Elijah's and Gunpowder Creeks. This biological monitoring will be used to help determine the adequacy of the approved TMDL. The agency may re-evaluate and adjust the permit requirements if necessary to ensure the protection of water quality within Elijah's and Gunpowder Creeks. As noted in the summary of the TMDL, "water quality is expected to improve significantly from these actions, monitoring will continue to ensure this occurs, and additional measures will be taken if necessary to restore Elijah's and Gunpowder Creek." In addition, ethylene glycol, propylene glycol, and total organic carbon will be monitored in this permit. The Division of Water will evaluate the correlation of the presence of each in conjunction with the BOD_5 limits established by the TMDL.

A summarization of the water quality standards, TMDL Development, assumptions, and calculations can be found in Attachment A – Fact Sheet Addendum for Cincinnati/Northern Kentucky International Airport, Attachment B – SSTWAM95 for Cincinnati/Northern Kentucky International Airport and Attachment C – Reasonable Potential Analysis for Cincinnati/Northern Kentucky International Airport.

d. Monitoring Requirements

An instantaneous flow measurement shall be obtained once per month during the summer (May 1 through September 30) and once per week during the winter (October 1 through April 30).

Dissolved Oxygen shall be continuously recorded by grab sample.

BOD_5, pH, Ammonia Nitrogen, Oil & Grease, Total Suspended Solids, Total Organic Carbon, Ethylene Glycol, Total Potassium, and Propylene Glycol shall be monitored once per month by grab sample during the summer (May 1 through September 30) and once per week by grab sample during the winter (October 1 through April 30).

e. Justification of Conditions

The Kentucky regulations cited below have been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes.

Flow
The monitoring requirements for this parameter are consistent with the requirements of 401 KAR 5:065, Section 2(8).

Ammonia Nitrogen, and Dissolved Oxygen
The limits for these parameters are consistent with the requirements of 401 KAR 10:031, Section 4, and 401 KAR 5:045, Sections 3 and 5. Section 4 of 5:031 establish water quality criteria for the protection of Kentucky's waters. Section 5 of 5:045 requires biochemically degradable wastewaters to receive treatment in excess of secondary treatment if the Cabinet determines that the receiving water would not satisfy applicable water quality standards as a result of a facility discharge or discharges from multiple facilities

BOD_5 and Total Suspended Solids
The limits for these parameters are consistent with the requirements of 401 KAR 10:031, Section 4 and 5:045, Sections 2 and 3. Section 4 of 10:031 establish water quality criteria for the protection of Kentucky's waters. Sections 2 and 3 of 5:045 require biochemically degradable wastewaters to receive secondary treatment.

pH
The limits for these parameters are consistent with the requirements of 401 KAR 10:031, Section 4 and 5:045, Section 4. Section 4 of 10:031 establish water quality criteria for the protection of Kentucky's waters. Section 4 of 5:045 establish the acceptable levels of these parameters for biochemically degradable wastewaters.

3C. REPORTED DISCHARGE AND PROPOSED LIMITS

Serial Number – Outfall 004 – Storm water run off from the southern portion of the facility, aircraft deicing fluids, runway deicing fluids, fuel residuals, and treated water from the biological treatment system.

Effluent Characteristics	**Reported Discharge**		**Proposed Limits**		**Applicable Water Quality Criteria and/or Effluent Guidelines**
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	
Flow (MGD)	1.26	73.4	Report	Report	401 KAR 5:065, Section 2(8)
BOD_5 (mg/l)					401 KAR 10:031, Section 4
May 1 – October 31	2.68	24	50	50	401 KAR 5:045, Sections 3 and 5
November 1 – April 30	5.84	77	85	85	
TSS (mg/l)	10.36	52	30	60	401 KAR 10:031, Section 4 401 KAR 5:045, Sections 2 and 3
Ammonia Nitrogen (as mg/l N)					
May 1 - October 31	.11	.81	4.0	4.0	401 KAR 10:031, Section 4
November 1 - April 30	.24	3.2	10	10	401 KAR 5:045, Sections 3 and 5
Dissolved Oxygen (mg/l) (minimum)	8.98	12.8	Not less than 5.0		401 KAR 10:031, Section 4 401 KAR 5:045, Sections 3 and 5
pH (standard units)	7.24	9.71	6.0 (min)	9.0 (max)	401 KAR 10:031, Section 4 401 KAR 5:045, Section 4
Oil & Grease (lbs/day)	5.21	49.3	10	15	401 KAR 10:031, Section 4 401 KAR 5:045, Sections 2 and 3
Potassium, Total (as mg/l K)	29.99	117	Report	Report	401 KAR 5:065, Section 2(8)
Carbon, Total Organic (mg/l)	8.49	56	Report	Report	401 KAR 5:065, Section 2(8)
Propylene Glycol (mg/l)	1.42	17.3	Report	Report	401 KAR 5:065, Section 2(8)
Ethylene Glycol (mg/l)	2.51	16.8	Report	Report	401 KAR 5:065, Section 2(8)

The data contained under the reported discharge columns is not from the renewal application, but rather from the analysis of the DMR data that has been reported during the term of the previous permit.

The abbreviation BOD_5 means Biochemical Oxygen Demand (5-day).
The abbreviation TSS means Total Suspended Solids.
The abbreviation NR means not reported on the Discharge Monitoring Report (DMR).
The effluent limitations for BOD_5 and TSS are Monthly (30 day) and Weekly (7 day) Averages.

4C. METHODOLOGY USED IN DETERMINING LIMITATIONS

a. Serial Number

Outfall 004 – Storm water run off from the southern portion of the facility, aircraft deicing fluids, runway deicing fluids, fuel residuals, and treated water from the biological treatment system.

b. Effluent Characteristics

Flow, BOD_5, TSS, pH, Ammonia Nitrogen, Dissolved Oxygen, Oil & Grease, Total Organic Carbon, Total Potassium, Propylene Glycol, and Ethylene Glycol.

c. Pertinent Factors

Based on Kentucky's 1996 303(d) list of impaired water, Gunpowder Creek was listed as a high priority. The high priority listing required the development of a Total Maximum Daily Load (TMDL) for deicing fluids. Ethylene glycol and propylene glycol are main components of deicing fluids. They create a high biochemical oxygen demand, (BOD_5) and a high carbon source of food resulting in the growth of Sphaerotilus bacteria. Sphaerotilus grows rapidly in water high in carbon content and low in dissolved oxygen. It grows in long streamers covering the sides and bottom of a stream.

The Kentucky Division of Water issued the Total Maximum Daily Load (TMDL) – Impacts of Deicing Fluids on Elijah's and Gunpowder Creeks on February 5, 1998. The TMDL was approved by EPA Region IV. The TMDLs set the total maximum daily loads for deicing fluids by establishing limits for BOD_5 on each stream. As a part of this permit action, the permittee is required to develop and implement a Biological Assessment Sampling Plan for Elijah's and Gunpowder Creeks. This biological monitoring will be used to help determine the adequacy of the approved TMDL. The agency may re-evaluate and adjust the permit requirements if necessary to ensure the protection of water quality within Elijah's and Gunpowder Creeks. As noted in the summary of the TMDL, "water quality is expected to improve significantly from these actions, monitoring will continue to ensure this occurs, and additional measures will be taken if necessary to restore Elijah's and Gunpowder Creek." In addition, ethylene glycol, propylene glycol, and total organic carbon will be monitored in this permit. The Division of Water will evaluate the correlation of the presence of each in conjunction with the BOD_5 limits established by the TMDL.

A summarization of the water quality standards, TMDL Development, assumptions, and calculations can be found in Attachment A – Fact Sheet Addendum for Cincinnati/Northern Kentucky International Airport, Attachment B – SSTWAM95 for Cincinnati/Northern Kentucky International Airport and Attachment C – Reasonable Potential Analysis for Cincinnati/Northern Kentucky International Airport.

d. Monitoring Requirements

An instantaneous flow measurement shall be obtained once per month during the summer (May 1 through September 30) and once per week during the winter (October 1 through April 30).

Dissolved Oxygen shall be continuously recorded by grab sample.

BOD_5, pH, Ammonia Nitrogen, Oil & Grease, Total Suspended Solids, Total Organic Carbon, Ethylene Glycol, Total Potassium, and Propylene Glycol shall be monitored once per month by grab sample during the summer (May 1 through September 30) and once per week by grab sample during the winter (October 1 through April 30).

e. Justification of Conditions

The Kentucky regulations cited below have been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes.

Flow
The monitoring requirements for this parameter are consistent with the requirements of 401 KAR 5:065, Section 2(8).

Ammonia Nitrogen, and Dissolved Oxygen
The limits for these parameters are consistent with the requirements of 401 KAR 10:031, Section 4, and 401 KAR 5:045, Sections 3 and 5. Section 4 of 5:031 establish water quality criteria for the protection of Kentucky's waters. Section 5 of 5:045 requires biochemically degradable wastewaters to receive treatment in excess of secondary treatment if the Cabinet determines that the receiving water would not satisfy applicable water quality standards as a result of a facility discharge or discharges from multiple facilities

BOD_5 and Total Suspended Solids
The limits for these parameters are consistent with the requirements of 401 KAR 10:031, Section 4 and 5:045, Sections 2 and 3. Section 4 of 10:031 establish water quality criteria for the protection of Kentucky's waters. Sections 2 and 3 of 5:045 require biochemically degradable wastewaters to receive secondary treatment.

pH
The limits for these parameters are consistent with the requirements of 401 KAR 10:031, Section 4 and 5:045, Section 4. Section 4 of 10:031 establish water quality criteria for the protection of Kentucky's waters. Section 4 of 5:045 establish the acceptable levels of these parameters for biochemically degradable wastewaters.

5. ANTIDEGRADATION

The conditions of 401 KAR 10:029, Section 1 have been satisfied by this permit action. Since this permit action involves reissuance of an existing permit, and does not propose an expanded discharge, a review under 401 KAR 10:030 Section 1 is not applicable.

6. PROPOSED COMPLIANCE SCHEDULE FOR ATTAINING EFFLUENT LIMITATIONS

The permittee will comply with all effluent limitations by the effective date of the permit.

7. PROPOSED SPECIAL CONDITIONS WHICH WILL HAVE A SIGNIFICANT IMPACT ON THE DISCHARGE

Outfall Signage

The KPDES permit establishes monitoring points, effluent limitations, and other conditions to address discharges from the permitted facility pursuant 40 CFR 122.48. In an effort to better document and clarify these locations the permittee should place and maintain a permanent marker at each of the monitoring locations.

8. **PERMIT DURATION**

Five (5) years. This facility is in the Salt/Licking Basin Management Unit as per the Kentucky Watershed Management Framework.

9. **PERMIT INFORMATION**

The application, draft permit, fact sheet, public notice, comments received and additional information is available from the Division of Water at 200 Fair Oaks Lane, Frankfort, Kentucky 40601.

10. **REFERENCES AND CITED DOCUMENTS**

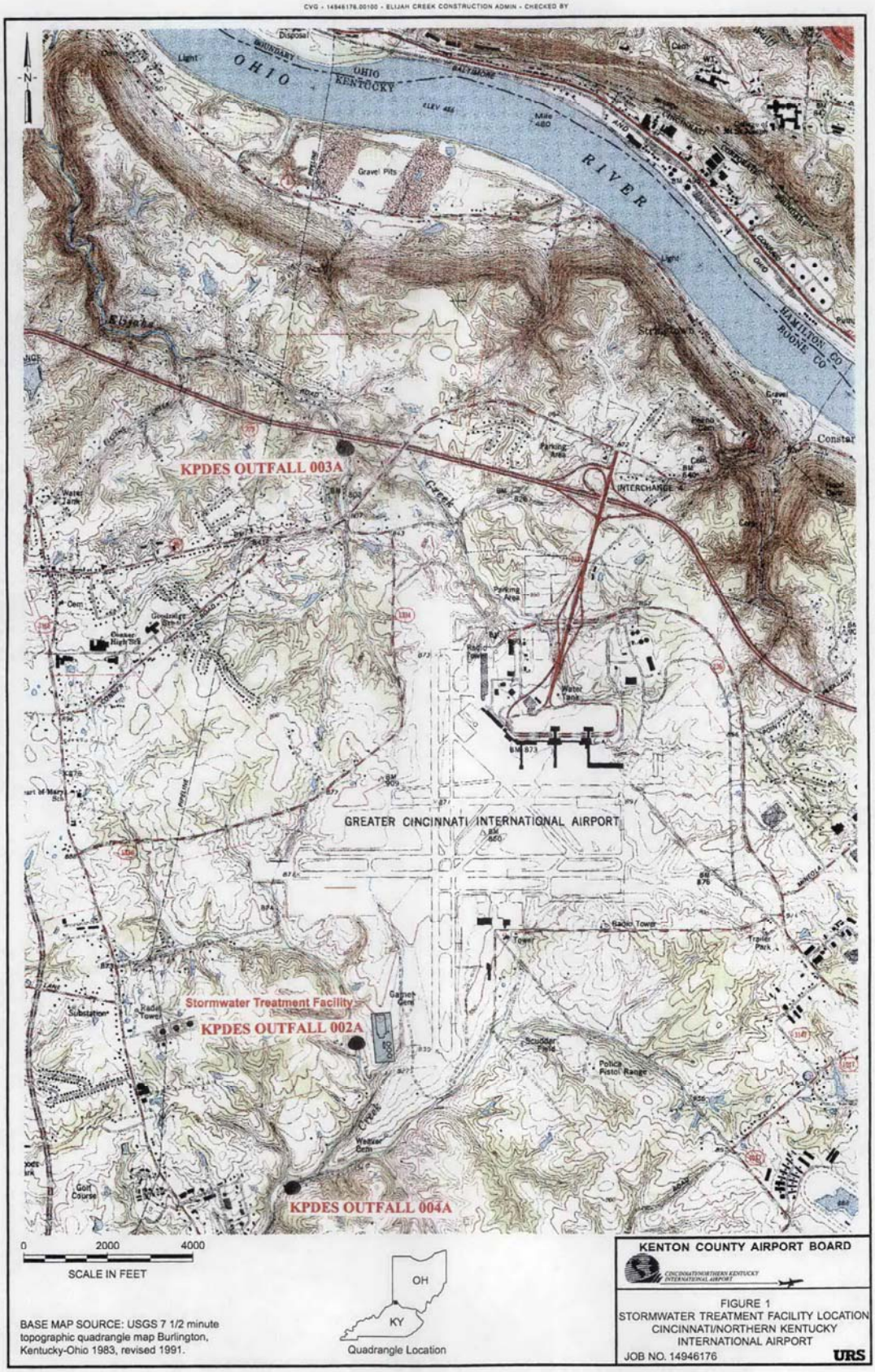
All material and documents referenced or cited in this fact sheet are parts of the permit information as described above and are readily available at the Division of Water Central Office. Information regarding these materials may be obtained from the person listed below.

11. **CONTACT**

For further information on the draft permit or comment process, contact the individual identified on the Public Notice or the Permit Writer – Jonathan Reynolds at (502) 564-8158, extension 4834, or email jonathan.reynolds@ky.gov.

12. **PUBLIC NOTICE INFORMATION**

Please refer to the attached Public Notice for details regarding the procedures for a final decision, deadline for comments and other information required by 401 KAR 5:075, Section 4(2)(e).


CVG - 14946176.00100 - ELIJAH CREEK CONSTRUCTION ADMIN - CHECKED BY
OHIO
KENTUCKY
RIVER
HAMILTON CO.
BOONE CO.
KPDES OUTFALL 003A
GREATER CINCINNATI INTERNATIONAL AIRPORT
Stormwater Treatment Facility
KPDES OUTFALL 002A
KPDES OUTFALL 004A
0 2000 4000
SCALE IN FEET
OH
KY
Quadrangle Location
BASE MAP SOURCE: USGS 7 1/2 minute topographic quadrangle map Burlington, Kentucky-Ohio 1983, revised 1991.
KENTON COUNTY AIRPORT BOARD
CINCINNATI/NORTHERN KENTUCKY INTERNATIONAL AIRPORT
FIGURE 1
STORMWATER TREATMENT FACILITY LOCATION
CINCINNATI/NORTHERN KENTUCKY
INTERNATIONAL AIRPORT
JOB NO. 14946176
URS

KPDES

KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

PERMIT

PERMIT NO.: KY0082864
AI NO.: 197

AUTHORIZATION TO DISCHARGE UNDER THE KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM

Pursuant to Authority in KRS 224,

Kenton County Airport Board
P.O. Box 752000
Cincinnati, OH 45275-2000

is authorized to discharge from a facility located at

Cincinnati/Northern Kentucky International Airport
2939 Terminal Drive
Hebron, Boone County, Kentucky

to receiving waters named

Facility discharges to Elijah Creek at latitude 39°4′30″ and longitude 84°39′15″.

Facility discharges to Gunpowder Creek at latitude 39°2′00″ and longitude 84°40′30″.

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, III, and IV hereof. The permit consists of this cover sheet, and Part I 6 pages, Part II 1 pages, Part III 2 page, and Part IV 3 pages.

This permit shall become effective on.

This permit and the authorization to discharge shall expire at midnight, .

Date Signed

Sandra L. Gruzesky, Director
Division of Water

PART I 1A - EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: 002 – Internal outfall from the storm water treatment system, Extended Aeration Activated Sludge (EAAS) which treats contaminated storm water runoff. (Design Flow = 3.0 MGD)

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS (lbs/day)		DISCHARGE LIMITATIONS Other Units (Specify)		MONITORING REQUIREMENTS	
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report	N/A	N/A	Continuous	Instantaneous
BOD_5 (mg/l)	N/A	N/A	Report	Report	1/Week*	Grab
TSS (mg/l)	N/A	N/A	Report	Report	1/Week*	Grab
Ammonia Nitrogen (as mg/l N)						
May 1 - October 31	N/A	N/A	Report	Report	1/Week*	Grab
November 1 - April 30	N/A	N/A	Report	Report	1/Week*	Grab
Oil & Grease (mg/l)	N/A	N/A	Report	Report	1/Week*	Grab
Potassium, Total (mg/l as K)	N/A	N/A	Report	Report	1/Week*	Grab
Ethylene Glycol (mg/l)	N/A	N/A	Report	Report	1/Week*	Grab
Propylene Glycol (mg/l)	N/A	N/A	Report	Report	1/Week*	Grab
Total Organic Carbon (mg/l)	N/A	N/A	Report	Report	1/Week*	Grab
Dissolved Oxygen (mg/l) (minimum)	N/A	N/A	Not less than 5.0		Continuous	Grab
pH (standard units)	N/A	N/A	6.0 (min)	9.0 (max)	Continuous	Grab

The abbreviation BOD_5 means Biochemical Oxygen Demand (5-day).
The abbreviation TSS means Total Suspended Solids.
The abbreviation N/A means Not Applicable.
The effluent limitations for BOD_5 and TSS are Monthly (30 day) and Weekly (7 day) Averages.

* Samples shall be taken once per week during the period that the SBR is operational. During the period when the SBR is shut down, the “No Discharge” box shall be marked on the DMR.

There shall be no discharge of floating solids or visible foam or sheen in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters or wastestreams from other outfalls.

PART I 2A - EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: Outfall 003 Summer (May 1- September 30) – Storm water runoff, aircraft deicing fluids, runway deicing fluids, and fuel residuals discharged to Elijah's Creek.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS (lbs/day)		Other Units (Specify)		MONITORING REQUIREMENTS	
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report	N/A	N/A	1/Month	Instantaneous
BOD_5 (mg/l)	N/A	N/A	70	70	1/Month	Grab
TSS (mg/l)	N/A	N/A	30	60	1/Month	Grab
Ammonia Nitrogen (as mg/l N)	N/A	N/A	4	4	1/Month	Instantaneous
Oil & Grease (mg/l)	N/A	N/A	10	15	1/Month	Grab
Potassium, Total (mg/l as K)	N/A	N/A	Report	Report	1/Month	Grab
Ethylene Glycol (mg/l)	N/A	N/A	Report	Report	1/Month	Grab
Propylene Glycol (mg/l)	N/A	N/A	Report	Report	1/Month	Grab
Total Organic Carbon (mg/l)	N/A	N/A	Report	Report	1/Month	Grab
Dissolved Oxygen (mg/l) (minimum)	N/A	N/A	Not less than 4.0**		1/Continuous	Grab
pH (standard units)	N/A	N/A	6.0 (min)	9.0 (max)	1/Month	Grab

The abbreviation BOD_5 means Biochemical Oxygen Demand (5-day).
The abbreviation TSS means Total Suspended Solids.
The abbreviation N/A means Not Applicable.
The effluent limitations for BOD_5 and TSS are Monthly (30 day) and Weekly (7 day) Averages.

There shall be no discharge of floating solids or visible foam or sheen in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters or wastestreams from other outfalls.

** Dissolved Oxygen shall be maintained at a minimum concentration of five and zero-tenths (5.0) mg/l daily average; the instantaneous minimum shall not be less than four and zero-tenths (4.0) mg/l.

PART I 3A - EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: 003 Winter (October 1- April 30) – Storm water runoff, aircraft deicing fluids, runway deicing fluids, and fuel residuals discharged to Elijah's Creek.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS (lbs/day)		Other Units (Specify)		MONITORING REQUIREMENTS	
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report	N/A	N/A	1/Week	Instantaneous
BOD_5 (mg/l)	N/A	N/A	150	150	1/Week	Grab
TSS (mg/l)	N/A	N/A	30	60	1/Week	Grab
Ammonia Nitrogen (as mg/l N)	N/A	N/A	10	10	1/Week	Instantaneous
Oil & Grease (mg/l)	N/A	N/A	10	15	1/Week	Grab
Potassium, Total (mg/l as K)	N/A	N/A	Report	Report	1/Week	Grab
Ethylene Glycol (mg/l)	N/A	N/A	Report	Report	1/Week	Grab
Propylene Glycol (mg/l)	N/A	N/A	Report	Report	1/Week	Grab
Total Organic Carbon (mg/l)	N/A	N/A	Report	Report	1/Week	Grab
Dissolved Oxygen (mg/l) (minimum)	N/A	N/A	Not less than 5.0**		1/Continuous	Grab
pH (standard units)	N/A	N/A	6.0 (min)	9.0 (max)	1/Week	Grab

The abbreviation BOD_5 means Biochemical Oxygen Demand (5-day).
The abbreviation TSS means Total Suspended Solids.
The abbreviation N/A means Not Applicable.
The effluent limitations for BOD_5 and TSS are Monthly (30 day) and Weekly (7 day) Averages.

There shall be no discharge of floating solids or visible foam or sheen in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters or wastestreams from other outfalls.

** Dissolved Oxygen shall be maintained at a minimum concentration of five and zero-tenths (5.0) mg/l daily average; the instantaneous minimum shall not be less than four and zero-tenths (4.0) mg/l.

PART I 4A - EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: Outfall 004 Summer (May 1- September 30) – Storm water runoff, aircraft deicing fluids, runway deicing fluids, and fuel residuals discharged to Gunpowder Creek.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS (lbs/day)		DISCHARGE LIMITATIONS Other Units (Specify)		MONITORING REQUIREMENTS	
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report	N/A	N/A	1/Month	Instantaneous
BOD_5 (mg/l)	N/A	N/A	50	50	1/Month	Grab
TSS (mg/l)	N/A	N/A	30	60	1/Month	Grab
Ammonia Nitrogen (as mg/l N)	N/A	N/A	4	4	1/Month	Instantaneous
Oil & Grease (mg/l)	N/A	N/A	10	15	1/Month	Grab
Potassium, Total (mg/l as K)	N/A	N/A	Report	Report	1/Month	Grab
Ethylene Glycol (mg/l)	N/A	N/A	Report	Report	1/Month	Grab
Propylene Glycol (mg/l)	N/A	N/A	Report	Report	1/Month	Grab
Total Organic Carbon (mg/l)	N/A	N/A	Report	Report	1/Month	Grab
Dissolved Oxygen (mg/l) (minimum)	N/A	N/A	Not less than 5.0**		1/Continuous	Grab
pH (standard units)	N/A	N/A	6.0 (min)	9.0 (max)	1/Month	Grab

The abbreviation BOD_5 means Biochemical Oxygen Demand (5-day).
The abbreviation TSS means Total Suspended Solids.
The abbreviation N/A means Not Applicable.
The effluent limitations for BOD_5 and TSS are Monthly (30 day) and Weekly (7 day) Averages.

There shall be no discharge of floating solids or visible foam or sheen in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters or wastestreams from other outfalls.

** Dissolved Oxygen shall be maintained at a minimum concentration of five and zero-tenths (5.0) mg/l daily average; the instantaneous minimum shall not be less than four and zero-tenths (4.0) mg/l.

PART I 5A - EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: 004 Winter (October 1- April 30) – Storm water runoff, aircraft deicing fluids, runway deicing fluids, and fuel residuals discharged to Gunpowder Creek.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS (lbs/day)		Other Units (Specify)		MONITORING REQUIREMENTS	
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report	N/A	N/A	1/Week	Instantaneous
BOD_5 (mg/l)	N/A	N/A	85	85	1/Week	Grab
TSS (mg/l)	N/A	N/A	30	60	1/Week	Grab
Ammonia Nitrogen (as mg/l N)	N/A	N/A	10	10	1/Week	Instantaneous
Oil & Grease (mg/l)	N/A	N/A	10	15	1/Week	Grab
Potassium, Total (mg/l as K)	N/A	N/A	Report	Report	1/Week	Grab
Ethylene Glycol (mg/l)	N/A	N/A	Report	Report	1/Week	Grab
Propylene Glycol (mg/l)	N/A	N/A	Report	Report	1/Week	Grab
Total Organic Carbon (mg/l)	N/A	N/A	Report	Report	1/Week	Grab
Dissolved Oxygen (mg/l) (minimum)	N/A	N/A	Not less than 5.0**		1/Continuous	Grab
pH (standard units)	N/A	N/A	6.0 (min)	9.0 (max)	1/Week	Grab

The abbreviation BOD_5 means Biochemical Oxygen Demand (5-day).
The abbreviation TSS means Total Suspended Solids.
The abbreviation N/A means Not Applicable.
The effluent limitations for BOD_5 and TSS are Monthly (30 day) and Weekly (7 day) Averages.

There shall be no discharge of floating solids or visible foam or sheen in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters or wastestreams from other outfalls.

** Dissolved Oxygen shall be maintained at a minimum concentration of five and zero-tenths (5.0) mg/l daily average; the instantaneous minimum shall not be less than four and zero-tenths (4.0) mg/l.

PART I B - SCHEDULE OF COMPLIANCE

The permittee shall achieve compliance with all requirements on the effective date of this permit.

PART II - STANDARD CONDITIONS FOR KPDES PERMIT

This permit has been issued under the provisions of KRS Chapter 224 and regulations promulgated pursuant thereto. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits or licenses required by this Cabinet and other state, federal, and local agencies.

It is the responsibility of the permittee to demonstrate compliance with permit parameter limitations by utilization of sufficiently sensitive analytical methods.

The permittee is also advised that all KPDES permit conditions in KPDES Regulation 401 KAR 5:065, Section 1 will apply to all discharges authorized by this permit.

PART III - OTHER REQUIREMENTS

A. Reporting of Monitoring Results

Monitoring results obtained during each monitoring period must be reported on a preprinted Discharge Monitoring Report (DMR) Form that will be mailed to you. The completed DMR for each monitoring period must be sent to the Division of Water at the address listed below (with a copy to the appropriate Regional Office) postmarked no later than the 28th day of the month following the monitoring period for which monitoring results were obtained.

Division of Water
Florence Regional Office
8020 Veterans Memorial Drive
Florence, Kentucky 41042
ATTN: Supervisor

Division of Water
Surface Water Permits Branch
Permit Support Section
200 Fair Oaks Lane
Frankfort, Kentucky 40601

B. Reopener Clause

This permit shall be modified, or alternatively revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under 401 KAR 5:050 through 5:086, if the effluent standard or limitation so issued or approved:

1. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or

2. Controls any pollutant not limited in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of KRS Chapter 224 when applicable.

E. Outfall Signage

The KPDES permit establishes monitoring points, effluent limitations, and other conditions to address discharges from the permitted facility. In an effort to better document and clarify these locations the permittee should place and maintain a permanent marker at each of the monitoring locations.

F. Biological Assessment Sampling Plans and In-Stream Monitoring Stations

As part of approved Biological Assessment Sampling Plan, an annual biological assessment shall be conducted on both Elijah's and Gunpowder Creeks. The plan shall include biological assessments of both fish populations and aquatic macroinvertebrate communities. These assessments shall be performed in accordance with guidelines established by the Division of Water Statewide Macroinvertebrate Bioassessment Index (PDF document) found on Division of Water web site at www.water.ky.gov. In addition to this, the plan shall address methodology to assess the chemical water quality of the in-stream biological monitoring locations. These in-stream monitoring points shall be monitored for ethylene glycol, propylene glycol, BOD_5, dissolved oxygen, specific conductance, and pH at a minimum frequency of once per month.

The results of the above assessments shall be reported to the Division of Water in an annual report submitted within thirty (30) days of completion of the third calendar quarter. The results will be used by the Division of Water to determine the appropriateness of the TMDL based limitations. The agency may re-evaluate and adjust the permit requirements if necessary to ensure the protection of water quality within Elijah's and Gunpowder Creeks.

Request for changes in monitoring requirements and frequencies associated with these requirements shall be addressed to the Surface Water Permits Branch for review and approval. Submission of all related reports, studies, and data, shall be the Surface Water Permits Branch.

G. Bypass Notification

Any bypass of the treatment system at the Cincinnati/Northern Kentucky International Airport shall be reported to the Kentucky Division of Water in accordance with the provisions of 401 KAR 5:065, Section 1. In addition, the Cincinnati/Northern Kentucky International Airport shall notify Boone County Emergence Management, at (859) 334-2279 during normal working hours, and (859) 371-1234 after working hours.

PART IV - BEST MANAGEMENT PRACTICES

SECTION A. GENERAL CONDITIONS

1. Applicability

These conditions apply to all permittees who use, manufacture, store, handle, or discharge any pollutant listed as: (1) toxic under Section 307(a)(1) of the Clean Water Act; (2) oil, as defined in Section 311(a)(1) of the Act; (3) any pollutant listed as hazardous under Section 311 of the Act; or (4) is defined as a pollutant pursuant to KRS 224.01-010(35) and who have ancillary manufacturing operations which could result in (1) the release of a hazardous substance, pollutant, or contaminant, or (2) an environmental emergency, as defined in KRS 224.01-400, as amended, or any regulation promulgated pursuant thereto (hereinafter, the "BMP pollutants"). These operations include material storage areas; plant site runoff; in-plant transfer, process and material handling areas; loading and unloading operations, and sludge and waste disposal areas.

2. BMP Plan

The permittee shall develop and implement a Best Management Practices (BMP) plan consistent with 401 KAR 5:065, Section 2(10) pursuant to KRS 224.70-110, which prevents or minimizes the potential for the release of "BMP pollutants" from ancillary activities through plant site runoff; spillage or leaks, sludge or waste disposal; or drainage from raw material storage. A Best Management Practices (BMP) plan will be prepared by the permittee unless the permittee can demonstrate through the submission of a BMP outline that the elements and intent of the BMP have been fulfilled through the use of existing plans such as the Spill Prevention Control and Countermeasure (SPCC) plans, contingency plans, and other applicable documents.

3. Implementation

If this is the first time for the BMP requirement, then the plan shall be developed and submitted to the Division of Water within 90 days of the effective date of the permit. Implementation shall be within 180 days of that submission. For permit renewals the plan in effect at the time of permit reissuance shall remain in effect. Modifications to the plan as a result of ineffectiveness or plan changes to the facility shall be submitted to the Division of Water and implemented as soon as possible.

4. General Requirements

The BMP plan shall:

a. Be documented in narrative form, and shall include any necessary plot plans, drawings, or maps.

b. Establish specific objectives for the control of toxic and hazardous pollutants.

   (1) Each facility component or system shall be examined for its potential for causing a release of "BMP pollutants" due to equipment failure, improper operation, natural phenomena such as rain or snowfall, etc.

(2) Where experience indicates a reasonable potential for equipment failure (e.g., a tank overflow or leakage), natural condition (e.g., precipitation), or other circumstances which could result in a release of "BMP pollutants," the plan should include a prediction of the direction, rate of flow, and total quantity of the pollutants which could be released from the facility as result of each condition or circumstance.

c. Establish specific Best Management Practices to meet the objectives identified under paragraph b of this section, addressing each component or system capable of causing a release of "BMP pollutants."

d. Include any special conditions established in part b of this section.

e. Be reviewed by plant engineering staff and the plant manager.

5. Specific Requirements

The plan shall be consistent with the general guidance contained in the publication entitled "NPDES Best Management Practices Guidance Document," and shall include the following baseline BMPs as a minimum.

a. BMP Committee
b. Reporting of BMP Incidents
c. Risk Identification and Assessment
d. Employee Training
e. Inspections and Records
f. Preventive Maintenance
g. Good Housekeeping
h. Materials Compatibility
i. Security
j. Materials Inventory

6. SPCC Plans

The BMP plan may reflect requirements for Spill Prevention Control and Countermeasure (SPCC) plans under Section 311 of the Act and 40 CFR Part 151, and may incorporate any part of such plans into the BMP plan by reference.

7. Hazardous Waste Management

The permittee shall assure the proper management of solid and hazardous waste in accordance with the regulations promulgated under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1978 (RCRA) (40 U.S.C. 6901 et seq.) Management practices required under RCRA regulations shall be referenced in the BMP plan.

8. Documentation

The permittee shall maintain a description of the BMP plan at the facility and shall make the plan available upon request to EEC personnel. Initial copies and modifications thereof shall be sent to the following addresses when required by Section 3:

Division of Water
Florence Regional Office
8020 Veterans Memorial Drive
Florence, Kentucky 41042
ATTN: Supervisor

Division of Water
Surface Water Permits Branch
Permit Support Section
200 Fair Oaks Lane
Frankfort, Kentucky 40601

9. BMP Plan Modification

The permittee shall amend the BMP plan whenever there is a change in the facility or change in the operation of the facility which materially increases the potential for the ancillary activities to result in the release of "BMP pollutants."

10. Modification for Ineffectiveness

If the BMP plan proves to be ineffective in achieving the general objective of preventing the release of "BMP pollutants," then the specific objectives and requirements under paragraphs b and c of Section 4, the permit, and/or the BMP plan shall be subject to modification to incorporate revised BMP requirements. If at any time following the issuance of this permit the BMP plan is found to be inadequate pursuant to a state or federal site inspection or plan review, the plan shall be modified to incorporate such changes necessary to resolve the concerns.

SECTION B. SPECIFIC CONDITIONS

Storm Water Runoff from the Cincinnati/Northern Kentucky International Airport
Management of storm water runoff to the receiving waters shall be addressed as a section under this BMP Plan.

Attachment A – Fact Sheet Addendum for
Cincinnati/Northern Kentucky International Airport KY0082864

Development of Total Maximum Daily Load (TMDL) Requirements

Elijah's and Gunpowder Creeks have been listed on various versions of the 303(d) List of Waters for Kentucky as a first priority. The impaired use has been nonsupport of aquatic life. The pollutant of concern has been identified as non-priority organics, i.e. deicing fluids. The Division of Water developed and received EPA approval of a TMDL for Biochemical Oxygen Demand 5-day and Ammonia. These parameters are indicators of de-icing fluids and have been chosen as a surrogate for these fluids. These parameters also have established water quality standards from which the basis of the TMDLs was developed.

The airport has taken extensive measures to implement technology to contain and treat storm water runoff contaminated by deicing fluids. The airport has installed deicing pads and monitors the deicing activities in those designated areas. The deicing pads are constructed so that the drainage and runoff is captured and pumped to two (2) three million gallon holding tanks on the south end of the airfield, and one (1) two million gallon holding tank on the north end of the airfield. These tanks hold the spent deicing fluids until it is recovered through the airports glycol recovery plant. A biological treatment system, SBR (mentioned above) for treating contaminated storm water came online in 2004. This system has a design capacity of 1.5 MGD and loading of 15,000 lbs/day. The treatment process consists of: urea ammonia nitrogen, phosphoric acid, and an anti-foaming agent being injected into the influent, aerobic and anoxic conditions are generated by air diffusers and a mixer where the micro-organisms work on the BOD load. An aerobic digester receives the sludge, where air diffusers and a mixer assist the digestion process. Outfall 002 is the discharge point from this plant. Sludge will be managed through land application, landfill disposal, processing at Sanitation District No. 1, or other permitted sludge disposal facility.

In 2006, the airport started treating impacted storm water from Elijah's Creek in an expanded Gunpowder Creek Storm Water Treatment Facility consisting of an Extended Aeration Activated Sludge (EAAS) treatment system that doubled the capacity to 3.0 MGD.

ATTACHMENT B - SSTWAM95 ANALYSIS FOR CINCINNATI/NORTHERN KENTUCKY INTERNATIONAL AIRPORT KY0082864

13 May 2004
5:13:20 PM

Steady State Toxics Wasteload Allocation Model (SSTWAM'95)

SSTWAM'95 OUTPUT FILE

INPUT DATA :

KPDES Number:	KY0082864	
Facility Name:	Cincinnati-NKy Airport	
Receiving Water:	Elijah - Gunpowder C	
Requested by:	JMB	
Date Entered:	5/13/200	
User Name	becker	
QT =	0.112	MGD
QU =	0	MGD
QH1NC =	0	MGD
QH1C =	0	MGD
QH2NC =	8402	MGD
QH2C =	37068	MGD
HT =	200	mg/l as CaCO3
HU =	150	mg/l as CaCO3
ZID =	1	dilutions
MZ =	0.33333	
ACR =	0.1	
HQ =	NO	

CALCULATION METHODOLOGY :

AQUATIC LIFE - CHEMICAL SPECIFIC

ACUTE: IF NO ZONE OF INITIAL DILUTION (ZID) GIVEN, THEN ACUTE CRITERIA APPLIES AT END OF PIPE (EOP), CT=CDA
IF ZID IS GIVEN THEN CT=(CDA-CU) (ZID)

CHRONIC: MIXING ZONE / COMPLETE MIX
CT=(CDC[(QT+MZ)QU)]-CU(MZ)QU)/QT

HUMAN HEALTH - CHEMICAL SPECIFIC

FISH ONLY: MIXING ZONE / COMPLETE MIX
CARCINOGEN: CT=(CDH1[(QT+MZ)QH1C)]-CU(MZ)QH1C)/QT
NON-CARCINOGEN: CT=(CDH1[(QT+MZ)QH1NC)]-CU(MZ)QH1NC)/QT

FISH & WATER: COMPLETE MIX, APPLICABLE AT POINT OF WITHDRAWAL
CARCINOGEN: CT=(CDH2[(QT+QH2C)]-CU(QH2C))/QT
NON-CARCINOGEN: CT=(CDH2[(QT+QH2NC)]-CU(QH2NC))/QT

AQUATIC LIFE - WHOLE EFFLUENT

ACUTE: IF NO ZID GIVEN, THEN ACUTE CRITERIA APPLIES AT EOP, CT=CDA, IN ACUTE TOXICITY UNITS
IF ZID IS GIVEN, THEN CT=[(CDA-CU)] (ZID)

CHRONIC: MIXING ZONE / COMPLETE MIX
CT, IN CHRONIC TOXICITY UNITS = (CDC[(QT+MZ)QU)]-CU(MZ)QU)/QT
CT, IN ACUTE TOXICITY UNITS = (CT, IN CHRONIC TOXICITY UNITS) (ACR)

DEFINITIONS :

ACR=	ACUTE TO CHRONIC RATIO
CDA=	ACUTE DOWNSTREAM CONCENTRATION (CRITERIA) FOR AQUATIC LIFE
CDC=	CHRONIC DOWNSTREAM CONCENTRATION (CRITERIA) FOR AQUATIC LIFE
CDH1=	DOWNSTREAM CONCENTRATION (CRITERIA) FOR HUMAN HEALTH FISH CONSUMPTION ONLY
CDH2=	DOWNSTREAM CONCENTRATION (CRITERIA) FOR HUMAN HEALTH FISH AND WATER CONSUMPTION
CT=	END OF PIPE OUTPUT LIMIT
CU=	CONCENTRATION UPSTREAM (BACKGROUND CONCENTRATION)
EOP=	END OF PIPE
HM=	HARMONIC MEAN STREAM FLOW
HT=	EFFLUENT HARDNESS
HU=	STREAM HARDNESS
MGD=	MILLION GALLONS PER DAY
MZ=	MIXING ZONE FACTOR
QT=	TOTAL EFFLUENT FLOW
QH1C=	STREAM FLOW (HM) FOR HUMAN HEALTH, FISH CONSUMPTION, CARCINOGEN, AT POINT OF DISCHARGE
QH1NC=	STREAM FLOW (7Q10) FOR HUMAN HEALTH, FISH CONSUMPTION, NON-CARCINOGEN, AT POINT OF DISCHARGE
QH2C=	STREAM FLOW (HM) FOR HUMAN HEALTH, FISH & WATER CONSUMPTION, CARCINOGEN, AT POINT OF WITHDRAWAL
QH2NC=	STREAM FLOW (7Q10) FOR HUMAN HEALTH, FISH & WATER CONSUMPTION, NON-CARCINOGEN, AT POINT OF WITHDRAWAL
QU=	STREAM FLOW (7Q10) FOR WATER QUALITY AT POINT OF DISCHARGE
TUa=	ACUTE TOXICITY UNITS
TUc=	CHRONIC TOXICITY UNITS
ug/l=	MICROGRAMS PER LITER
ZID=	ZONE OF INITIAL DILUTION FACTOR
HQ=	HIGH QUALITY INDICATOR

CAP ON HARDNESS FOR METALS = 400 mg/l CaCO3

ATTACHMENT C – REASONABLE POTENTIAL ANALYSIS
FOR CINCINNATI/NORTHERN KENTUCKY INTERNATIONAL AIRPORT KY0082864

A reasonable potential analysis is a determination by the Division of Water of whether effluent limitations, monitoring only, or no requirements are imposed for a particular parameter on a specific permit. To perform the analysis, the values reported on either the permit application or a summarization of the discharge monitoring data are divided by the expected effluent limit generated using SSTWAM95 and converted to a percentage for each pollutant. That percentage is then compared to the following criteria:

Percentage	Requirement
Less than 70%	None
Greater than 70% but less than 90%	Monitoring Only Required
Greater than 90%	Limit Required

In all cases, the Division of Water still may exercise its Best Professional Judgement in the implementation of the results, i.e. should insufficient data points exist to make a reasonable determination that a limit should be applied, then DOW may require additional monitoring to ensure the appropriate requirement is imposed. This may take the form of additional monitoring requested during the development of the permit or may be required as part of the final permit.

The following table illustrates the results of the reasonable potential analysis performed on this facility.

Chemical Specific Parameter	Limits		Reported Values		Percentage		Effluent Limitations	
	Average	Maximum	Average	Maximum	Average	Maximum	Average	Maximum
Benzene	71	NA	0	0	0.00%	0.00%	None	None
Ethylbenzene	29000	NA	0	0	0.00%	0.00%	None	None
Naphthalene	NA	NA	0	0	0.00%	0.00%	None	None
Toluene	200000	NA	0	0	0.00%	0.00%	None	None